REMARKS

Claims 1-29 and 31-33 are pending in this application. By this Amendment, claims 1-20, 22-29 and 31-33 are amended. No new matter is added as the amended claims are supported on, for example, page 12, lines 31-37, page 13, lines 1-4, page 19, lines 16-20, page 20, lines 14-24, page 25, line 19-23, page 26, lines 36-39, page 28 lines 5 and 6 and page 29, lines 22-24 of Applicants' specification as originally filed. Claims 16-28 are currently withdrawn as drawn to non-elected groups of claims. Applicants respectfully request that, upon finding claims 1-15, 29 and 31-33 allowable for the reasons set forth below, claims 16-28 should be rejoined and allowed as well. Claim 30 is canceled without prejudice to, or disclaimer of, the subject matter recited in that claim. Reconsideration of the application based on the above amendments and the following remarks is respectfully requested.

Entry of the amendments is proper under 37 CFR §1.116 because the amendments: (a) place the application in condition for allowance for the reasons discussed herein; (b) do not raise any new issue requiring further search and/or consideration, as the amendments amplify issues previously discussed throughout prosecution; (c) and place the application in better form for appeal. The amendments are necessary and were not earlier presented because they are made in response to arguments raised in the final rejection. Entry of the amendments is thus respectfully requested.

The Office Action rejects claims 1-9, 12, 13, 29 and 31-33 under 35 U.S.C. §103(a) as allegedly being unpatentable over WO 00/25923 A1 to Moore et al. (hereinafter "Moore"). The Office Action rejects claims 10, 11, 14 and 15 under 35 U.S.C. §103(a) as allegedly being unpatentable over Moore in view of U.S. Patent Application Publication

No. 2001/0010206 A1 to Bryning et al. (hereinafter "Bryning").[1] The Office Action rejects claim 30 under 35 U.S.C. §103(a) over Moore in view of U.S. Patent No. 4,939,410 to Nagy et al. (hereinafter "Nagy"). These rejections are respectfully traversed.

Claim 1 is amended to incorporate the features of now-canceled claim 30. The combination of applied references would not have rendered obvious an electrochemical cell comprising a device for receiving a fluid sample, which is configured so as to form an electrode that is accessible to be electrically connected to an electrical generator, as recited in independent claim 1.

Moore discloses a dropping tool for transferring drops of a liquid onto a substrate (Moore, Abstract). Moore illustrates, in Fig. 1, a lower section of the dropping tool having its whole surface other than a region at its tip 14 coated with a single layer 16 of a relatively hydrophobic material, such as Teflon or tetrahedral amorphous carbon (Moore, page 2). Moore illustrates, in Fig. 9, a dropping tool where a pin substrate having a squared-off tip is provided with a recess 97. A layer 98 of a hydrophilic material is formed over the entire surface of the pin substrate 92 and a second layer 96 of a relatively hydrophobic material is formed over the entire surface of the layer 98 of hydrophilic material except for a circular region 99 in the recess 97 at the tip of the pin (Moore, page 6).

The Office Action concedes that Moore does not specifically teach that the device is configured to form an electrode. However, the Office Action asserts that Moore teaches the hydrophilic layer 98 is comprised of amorphous carbon or platinum metal, which is formed around the recess. Amorphous carbon or platinum metal is indicated by the Office Action as inherently electrically conductive. Thus, the Office Action concludes that it would have been obvious that the dropping tool "can be" configured to form an electrode.

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[1] The Office Action refers to the Bryning reference by the second named inventor, Vann.

However, it would not have been obvious for one of ordinary skill in the art to modify the dropping tool of Moore to form an electrode. Modifying the dropping tool of Moore would require the interruption of the non-conductive hydrophobic layer 96. This modification would be inconsistent with the disclosure of Moore because the hydrophobic layer 96 extends on the whole external surface of the dropping tool and covers the hydrophilic layer 98. Thus, the hydrophilic layer 98 is not accessible to be electrically connected to an electrical generator to function as an electrode. That is, it would not have been obvious to modify the dropping tool of Moore to be an electrode because the hydrophilic layer 98 is fully shielded and thus unable to function as an electrode. An apparatus that has a conductive material located within a fully shielded non-conductive material does not make the apparatus configured to be an electrode.

Additionally, the Office Action, on page 8, acknowledges that Moore does not disclose an electrochemical cell comprising the dropping tool. However, the Office Action relies on Nagy as allegedly overcoming the deficiencies of Moore.

Nagy discloses an electrode arrangement with liquid-metal electrode of controllable surface (Nagy, Abstract). Nagy illustrates, in Fig. 1, a liquid-metal electrode 2 that communicates with a liquid-metal tank 14. The liquid-metal electrode 2 comprises a glass capillary 15, where at one end 48, a drop 16 of a liquid metal, e.g. a mercury drop, is formed (Nagy, col. 4, lines 44-51). Nagy illustrates, in Fig. 2, capillary section 17, 18 of the glass capillary 15 where electric connection to the liquid-metal filament and to the drop 16 is established through a metal body 19 (Nagy, col. 5, lines 1-18). In the course of measurement, the drop 16 formed at the end 48 of the glass capillary 15 forms the liquid-metal electrode 2 (Nagy, col. 5, lines 43-45).

The Office Action asserts that Nagy discloses an electrode arrangement wherein the liquid-metal electrode 2 is capable of dispensing a mercury drop and is used in an

electrochemical cell. Thus, the Office Action concludes that it would have been obvious to one of ordinary skill in the art to apply Moore's dropping tool as an electrode in an electrochemical cell, as disclosed by Nagy. For at least the reasons discussed below, it would not have been obvious to combine the teachings of Nagy with the dropping tool of Moore to result in the claim features.

First, the glass capillary 15 of Nagy is not steel, amorphous carbon or platinum metal. The glass capillary 15 of Nagy is not covered by a hydrophilic layer, and then subsequently covered by a hydrophobic layer. Therefore, the glass capillary of Nagy is unrelated and incompatible to combine with the dropping tool structure of Moore because of the different materials used.

Second, the dropping tool of Moore is designed so that when it is dipped and removed from a liquid source, the liquid adheres to the dropping tool so that the liquid can be transferred. Nagy does not disclose any function that corresponds to the dropping tool function of Moore. Rather, the liquid of Nagy comes from a reservoir 42 and is supplied to the glass capillary 15 to form drops 16 via gravity. The electrode of Nagy has no transferring function. That is, the electrode of Nagy is not adapted to remove and transfer liquid from the solution 46 but instead provides drops of mercury into the solution 46. Therefore, it would not have been obvious to combine Nagy with Moore because they each function in a different manner.

Finally, the liquid-metal electrode 2 of Nagy is intended to provide an electrically conductive element to be used as a consuming electrode (Nagy, col. 5, lines 14-18). However, Moore fails to disclose, and would not have rendered obvious, the dropping tool to transfer liquid, as disclosed in Moore, to be used as an electrode.

The combination of applied references also would not have rendered obvious an electrochemical cell in which when an end part is immersed in a fluid and then emerges

therefrom, a cavity retains part of the fluid by means of capillary action, a cavity depth/opening diameter ratio varying in a range from 0.01 to 1, as recited in independent claim 1.

The Office Action asserts that Moore teaches that the recess is made deep enough to hold the liquid drop which has a size of about 0.1 mm or less so that a drop of liquid does not make contact with the solid substrate. The Office Action acknowledges that Moore does not disclose the diameter of the opening. However, the Office Action asserts that the recess has to have a diameter opening of 100 micrometer or greater to retain a liquid drop size of 100 micrometer. The Office Action asserts that a drop of spherical shape will have a diameter of 100 micrometers and thus the depth of the cavity is equal to the 100 micrometer diameter of the drop. Finally, the Office Action asserts that for the drop of liquid to be dispensed from the recess opening, the minimum size of the recess opening has to be 100 micrometers. Thus, the Office Action concludes that the cavity depth/opening diameter ratio range is between 0.01 and 1. Applicants respectfully disagree.

Certainly the selective sizes of a drop and an opening depend on the viscosity of the liquid and the dynamics of its formation. Thus, for example, it is possible to generate a large drop from recesses having narrow openings. Therefore, the assertion of the Office Action that the recess has to have a diameter opening of 100 micrometers or greater to retain a liquid drop size of 100 micrometers is not correct.

Moreover, the volume of a cavity should be large enough so that it may contain the drop of liquid without protruding from the cavity and contacting the solid substrate. However, this feature of Moore does not disclose any information about the depth of the cavity. The depth of the cavity may be large enough to contain several drops, for example. The cavity dimension cannot be inferred directly from the drop dimensions, as suggested by

the pending Office Action. Therefore, Moore would not have rendered obvious the claimed cavity depth/opening diameter ratio.

For at least these reasons, the combination of Moore and Nagy would not have rendered obvious all the features recited in independent claim 1.

Claims 2-15, 29 and 31-33 depend from independent claim 1. Bryning fails to overcome the deficiencies of Moore and Nagy. Thus, claims 2-15, 29 and 31-33 are also patentable by reason of their dependence from independent claim 1, as well as for the additional features these claims recite. Accordingly, it is respectfully requested that the rejections be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-15, 29 and 31-33, and rejoinder and allowance of claims 16-28, are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

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Date: November 10, 2011

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